REMARKS

The Examiner is thanked for the performance of a thorough search.

By this amendment, Claims 1-30 have been amended. Amendments to the claims are made herein without acquiescence to the position of the Office Action or prejudice to pursue the claims as originally filed in a continuation application. Claims 31 and 32 have been added. No claims have been cancelled. Hence, Claims 1-32 are pending in the application.

INTERVIEW SUMMARY

The Applicant thanks the Examiner for the Interview conducted on April 22, 2005. The interview was between Examiner Mais and the Applicant's Attorney, Christopher J. Brokaw. Pending independent Claims 1, 5, and 7 that were rejected to in the Office Action were discussed along with U.S. Patent No. 6,424,659 issued to Viswanadham ("*Viswanadham*"). No agreement was reached. The Applicant is providing herein the amendment that was proposed during the interview.

SUMMARY OF THE REJECTIONS

Claims 1-30 were rejected under 35 U.S.C. § 102(e) as allegedly being unpatentable over *Viswanadham*.

The rejections are respectfully traversed.

THE PENDING CLAIMS ARE PATENTABLE OVER *VISWANADHAM*

As explained in further detail below, it is respectfully submitted that each of the pending claims recites at least one element that is not disclosed, taught, or suggested by the cited art.

A. CLAIMS 1-4, 16-19, AND 31-32

Claim 1 recites the features of:

> "A machine-implemented method for sending packets, comprising the steps of: **communicating, from an application to an operating system, a policy for manipulating packets**; and
>
> at the operating system, modifying the packets based on the policy." (emphasis added)

The above-cited combination of elements is not disclosed, taught, or suggested by

Viswanadham.

The approach for Claim 1 provides an advantageous method for sending packets from an origin to a destination. In the approach of Claim 1, a policy for manipulating packets is communicated from an application to an operating system. For example, the application may be a firewall or a proxy server. At the operating system, the packets are modified based on the policy. Advantageously, when the operating system receives packets intended for another recipient, the operating system may modify the packets based on the policy without further involvement by the application. Thus, the time and resources involved in context switching between the operating system and the application may be avoided.

Such an approach is in sharp contrast to the approach of *Viswanadham*. *Viswanadham* is directed to a switching device that is configured to perform routing at OSI layer 3, switching at OSI layer 2, and supporting multiple interfaces at OSI layer 1. Rather than describing a flexible approach wherein an application may, at any time, communicate to an operating system one or more policies for use in modifying packets received by the operating system, the approach of *Viswanadham* is silent with respect to how, or even if, packets are modified based on a policy. Further, *Viswanadham* discloses no technique for updating a policy used in modifying packets.

Importantly, the *Viswanadham* reference is directed towards implementing functionality performed by integrated circuits, a reduced instruction set (RISC) processor, and software, but is not directed towards implementing functionality in an operating system. Not only does the entire disclosure of *Viswanadham* fail to suggest how an operating system may be used in the approach of *Viswanadham*, but the phrase "operating system" does not appear once in the reference.

In view of the fundamental differences between the approach of Claim 1 and that of *Viswanadham*, the element of "communicating, from an application to an operating system, a policy for manipulating packets" is clearly not disclosed, taught, or suggested by *Viswanadham*. The portion of *Viswanadham* cited to show this element (Col. 2, lines 60-65) merely states, *in toto*:

> Preferred software functions include: dynamic Internet Protocol (IP) routing, (e.g., RIP, RIPv2, OSPF); layer 2 support (e.g., 802.1D STP); configuration support (e.g., enable/disable Layer 2 or Layer 3 support on per-port basis; ports can be grouped into broadcast domains; flexible subnet configuration); network management; (e.g., SNMP, HTML, Telnet, TFTP, DHCP support).

Significantly, the portion of *Viswanadham* cited above lacks any discussion of communicating anything from an application, let alone communicating, from an application to an operating system, a policy for manipulating packets as required by this element.

Equally important is the observation that the cited portion of *Viswanadham* lacks any discussion of the concept of an operating system. At best, the cited portion of *Viswanadham* lists several examples of functions of software that is stored in a RISC processor of a switch element, but the cited portion, as well as the entire disclosure of *Viswanadham*, lacks any suggestion of an operating system that receives a policy from an application.

Moreover, while the cited portion of *Viswanadham* discusses several software functions that may be performed in accordance with a policy, a software function is not itself a policy.

While the cited portion of *Viswanadham* discusses supporting "configuration support (e.g., enable/disable Layer 2 or Layer 3 support on per-port basis)," such discussion is limited to actions or functions that may be performed, rather than a reason for performing such actions or functions, such as would be provided by a policy. Thus, the cited portion of *Viswanadham* fails to discuss any policy, let alone a policy for manipulating packets as featured in the above-quoted element.

For at least the above reasons, it is respectfully submitted that the element of "communicating, from an application to an operating system, a policy for manipulating packets" is not disclosed, taught, or suggested by *Viswanadham*. As one or more elements featured in Claim 1 are not disclosed, taught, or suggested by *Viswanadham*, Claim 1 is patentable over the cited art and is in condition for allowance.

Claim 16 contains limitations similar to that of Claim 1, except that Claim 16 is recited in computer-readable medium format. Consequently, for at least the reasons given above with respect to Claim 1, it is respectfully submitted that Claim 16 is patentable over the cited art and is in condition for allowance.

Claims 2-4, 17-19, and 31-32 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 2-4, 17-19, and 31-32 is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 2-4, 17-19, and 31-32 introduces one or more additional limitations that independently render it patentable.

For example, Claims 31 and 32 feature the elements of "communicating, from the application to the operating system, a second policy for manipulating packets" and "at the operating system, modifying a second set of packets based on the second policy while the

operating system is still configured to modify the first set of packets based on the first policy."

No portion of *Viswanadham* discloses, teaches, or suggests this combination of elements.

B.   CLAIMS 5-6 AND 20-21

Claim 5 recites the features of:

> "A machine-implemented method for sending packets in a computer system, comprising the steps of:
> **communicating, from an application to hardware, a policy for manipulating packets**; and
> in the hardware, modifying the packets based on the policy." (emphasis added)

The above-cited combination of elements are not disclosed, taught, or suggested by

Viswanadham.

The approach for Claim 1 provides an advantageous method for sending packets from

an origin to a destination. In the approach of Claim 1, a policy for manipulating packets is

communicated from an application, e.g., a firewall or a proxy server, to hardware, such as a

router. In the hardware, the packets are modified based on the policy. Advantageously, when

the operating system receives packets intended for another recipient, the hardware may modify

the packets based on the policy without further involving the application. Thus, the time and

resources involved in context switching between the hardware and the application may be

avoided.

In view of the fundamental differences between the approach of Claim 1 and that of

Viswanadham, the element of "communicating, from an application to hardware, a policy for

manipulating packets" is clearly not disclosed, taught, or suggested by *Viswanadham*. The

portion of *Viswanadham* cited to show this element (Col. 2, lines 60-65; FIG. 10A, hardware

block, Col. 15, lines 49-51) discusses software functions that may be performed, but as

explained above, a software function that may be performed is not analogous to a policy. The

Office Action also cites the Transmit Queue Management Block 154 to show this element, but while the Transmit Queue Management Block 154 is a hardware block for managing transmit queue functions for switch circuit 20, *Viswanadham* lacks any suggestion that the Transmit Queue Management Block 154 receives a policy from any entity, let alone an application.

Additionally, the cited portion of *Viswanadham* lacks any discussion of communicating anything, let alone a policy for manipulating packets. Further, the cited portion of *Viswanadham* lacks any discussion of an application that is sending anything to any recipient, let alone a policy to hardware.

Consequently, for at least the above reasons, it is respectfully submitted that the element of "communicating, from an application to hardware, a policy for manipulating packets" is not disclosed, taught, or suggested by *Viswanadham*. As at least one element featured in Claim 5 is not disclosed, taught, or suggested by the cited art, Claim 5 is patentable over the cited art and is in condition for allowance.

Claim 20 contains limitations similar to that of Claim 5, except that Claim 20 is recited in computer-readable medium format. Consequently, for at least the reasons given above with respect to Claim 5, it is respectfully submitted that Claim 20 is patentable over the cited art and is in condition for allowance.

Claims 6 and 21 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 6 and 21 is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 6 and 21 introduces one or more additional limitations that independently render it patentable.

C.   CLAIMS 7-15 AND 22-30

Claim 7 recites the features of:

> "A machine-implemented method for sending messages, comprising the steps of:
> **creating an aggregate message from individual messages that are to be sent using an operating system service;**
> **transmitting the aggregate message to an operating system with a system call;**
> **within the operating system, dividing the aggregate message back into individual messages;** and
> transmitting the individual messages using the operating system service."
> (emphasis added)

The above-cited combination of elements are not disclosed, taught, or suggested by

Viswanadham.

The approach for Claim 1 provides an advantageous method for sending messages. In the approach of Claim 1, an aggregate message is created from individual messages that are to be sent using an operating system service. The aggregate message is transmitted to an operating system with a system call. Within the operating system, the aggregate message is divided into individual messages. The individual messages are transmitted using the operating system service. Advantageously, using the approach of Claim 7, a plurality of individual messages may be transmitted from an application to an operating system in a single system call, thereby reducing the number of context switches that must be performed.

Such an approach is in sharp contrast to the teachings of *Viswanadham*. The portion of *Viswanadham* cited to show the approach of Claim 7 allegedly teaches:

> Individual packets are received via the receive buffers in 64-byte slices with start-of and end-of-frame signaling, col. 7, lines 32 to col. 8, line 3; serviced in a time-division-multiplexed manner, col. 7, lines 26-32; it is inherent that groupings of packets can be bigger or smaller than the 64 bytes [sic] slices, but the packets must be reconstituted in the correct order for the

unicast/multicast/broadcast to the respective ports via the FE, see also col. 24, lines 6-10 and col. 21, lines 43-45. (see Office Action)

Assuming, *arguendo*, that *Viswanadham* teaches what the Office Action alleges *Viswanadham* to teach, numerous elements of Claim 7 would still not be disclosed, taught, or suggested by *Viswanadham*. For example, Claim 7 features the element of "creating an aggregate message from individual messages that are to be sent using an operating system service." Instead of teaching the creation of an aggregate message from individual messages that are to be sent using an operating system service, the cited portion of *Viswanadham* teaches sending a unit of data in one or more separate transmissions, or slices. To be clear, a slice represents a portion of a unit of data, not an aggregation of two or more messages. Thus, the cited portion of *Viswanadham* teaches away from creating an aggregate message, as the cited portion teaches splitting a single unit of data into multiple units, instead of aggregating multiple messages into a single aggregate message.

Another difference between cited portion of *Viswanadham* and the approach of Claim 7 is that the cited portion of *Viswanadham* lacks any suggestion of messages that are to be sent using an operating system service, let alone creating an aggregate message from individual messages that are to be sent using an operating system service. For at least the above reasons, the cited portion of *Viswanadham* fails to disclose, teach, or suggest the element of "creating an aggregate message from individual messages that are to be sent using an operating system service" featured in Claim 7.

In addition to not teaching an aggregate message as claimed, the cited portion of *Viswanadham* also fails to discuss the concept of transmitting anything to an operating system, let alone transmitting an aggregate message to an operating system with a system call. At best, the cited portion of *Viswanadham* merely describes sending portions of a packet (or a slice)

from one buffer to another buffer. However, a buffer is not analogous to an operating system. Thus, the cited portion of *Viswanadham* fails to disclose, teach, or suggest the element of "transmitting the aggregate message to an operating system with a system call" featured in Claim 7.

Similarly, the cited portion of *Viswanadham* fails to teach the element of "within the operating system, dividing the aggregate message back into individual messages" featured in Claim 7. As explained above, no portion of *Viswanadham* discusses either (a) the use of an operating system or (b) an aggregate message. Thus, it is respectfully submitted that this element cannot be disclosed, taught, or suggested by *Viswanadham*.

Consequently, for at least the above reasons, it is respectfully submitted that one or more elements featured in Claim 7 are not disclosed, taught, or suggested by *Viswanadham*. Thus, it is submitted that Claim 7 is patentable over the cited art and is in condition for allowance.

Claim 22 contains limitations similar to that of Claim 7, except that Claim 22 is recited in computer-readable medium format. Consequently, for at least the reasons given above with respect to Claim 7, it is respectfully submitted that Claim 22 is patentable over the cited art and is in condition for allowance.

Claims 8-15 and 23-30 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 8-15 and 23-30 is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 8-15 and 23-30 introduces one or more additional limitations that independently render it patentable.

CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-1302.

Respectfully submitted,

HICKMAN PALERMO TRUONG & BECKER LLP

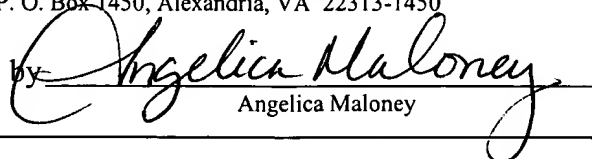Christopher J. Brokaw
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